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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,977	11/14/2003	Tsutomu Okabe	245166US3CIP	7502

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EXAMINER

MOORE, KARLA A

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.		Applicant(s)	
	10/706,977		OKABE ET AL.	
	Examiner		Art Unit	
	Karla Moore		1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 3 and 5 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 (respectively) of copending Application No.

10/330,092. Although the conflicting claims are not identical, they are not patentably distinct from each other because they contain recitations drawn to the same structures and relationships between those structures, where there are only slight stylistic differences in the language that is used.

7. Claim 8 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over each of claims 7, 8 and 10 of copending Application No. 10/330,092.

Although the conflicting claims are not identical, they are not patentably distinct from each other because they contain recitations drawn to the same structures and relationships between those structures, where there are only slight stylistic differences in the language that is used.

8. Claim 9 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of copending Application No. 10/330,092. Although the conflicting claims are not identical, they are not patentably distinct from each other because they contain recitations drawn to the same structures and relationships between those structures, where there are only slight stylistic differences in the language that is used.

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3. Claim 10 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over each of claims 1, 4, 7 and 8 of copending Application No. 10/706,915. Although the conflicting claims are not identical, they are not patentably distinct from each other because they contain recitations drawn to the same structures and relationships between those structures, where there are only slight stylistic differences in the language that is used. These are provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claims 2 and 3 recite the limitation "a gas flow path"; however, the gas flow path is previously claimed in claim 1. Examiner has assumed that each of the claims was meant to recite "**the** gas flow path" There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

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Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-3, 5-6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent Publication No. 2002/0064439 A1 to Otaguro in view of U.S. Patent No. 6,473,993 to Tokunaga.

10. Otaguro discloses a wafer processing apparatus in Figures 1-6 substantially as claimed and including a clean-environment portion having a chamber (200; paragraph 30) therein that is pressurized to a pressure higher than that of the exterior thereof (see paragraph 48) and used for transferring a wafer between a clean box (10) having a lid (13) and housing the wafer and the chamber, said apparatus comprising: a first opening portion (22) which is formed on part of a wall comprising the chamber to be communication with the chamber, facing to an opening of the clean box so as to allow loading and unloading the wafer between the clean box and the clean-environment portion; and a door (23) that closes, when the transfer of the wafer is not performed, the first opening portion and opens, when the transfer of the wafer is performed, wherein a gas flow path from the chamber to the exterior of the clean-environment portion is formed such that a flow rate of a gas flowing from the chamber to the exterior of the clean-environment portion in the case that the wafer transferring operation is not performed becomes substantially equal to a flow rate of gas coming out from a space formed from the chamber and the clean box in the case that the wafer transferring operation is performed. By providing aperture 52, the above described flow pattern is enabled, because communication is always present, regardless of whether the door is opened or closed. The aperture is located "around" the first opening portion, in that it is "located in the vicinity of" the first opening portion. In addition to teaching the importance of maintaining a communication between the higher pressure clean environment and the lower pressure clean box, Otaguro also teaches that the distance between the FOUP and the port plate can be rendered zero or *short*.

11. However, Otaguro fails to teach the clean-environment as a mini-environment. Nor, does Otaguro specifically teach that a gas flow path from the chamber to the exterior of the clean environment

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is formed so as to encircle the first opening portion. Although, as noted above, Otaguro does teach that a short distance may be maintained between the FOUP and the port plate.

12. Tokunaga discloses the use of a mini-environment for the purpose of holding wafers in an enclosed space to thereby protect the wafers from dust particles in the atmosphere or from chemical contamination (column 1, rows 53-56 and column 2, rows 36-40).

13. Tokunaga also discloses the use of a plurality of projections provided on a sealing surface of a load port system for the purpose of maintaining a predetermined distance between sealing surfaces thereby allowing a flow of clean air from a mini-environment to the outside thereof. The projections are also provided for the purpose of allowing a closure/door to stop repeatedly at the same position with high precision (column 7, row 23 through column 8, row 31). The projections provide a predetermined positional relationship between sealing surfaces of a clean environment portion (Figure 4, 21) and a clean box (Figure 4, 30)(also see, column 2, row 66 through column 3, row 16). The projections allow for a gap to be maintained encircling the first opening and providing communication between the mini-environment portion and the clean box.

14. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a mini-environment in Otaguro in order to hold wafers in an enclosed space to thereby protect the wafer from dust particles in the atmosphere or from chemical contamination as taught by Tokunaga.

15. It would have been further obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of projections on the door in Otaguro in order to maintain a predetermined distance between sealing surfaces thereby allowing a flow of clean air from the mini-environment to the outside thereof encircling the first opening and also to allow the door to stop repeatedly at the same position with high precision as taught by Tokunaga.

16. With respect to claim 2, in Otaguro and Tokunaga, "the" gas flow path of the gas flowing out from the space formed from the chamber and clean box in a case that the wafer transferring operation is

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performed includes a space formed around the opening of the clean box (see paragraph 46) and the gas flow path is designed so that the gas does not flow into an inner space of the clean box.

17. With respect to claim 3, in Otaguro, a gas flow path of the gas flowing out from the chamber to the exterior of the clean-environment portion in case that the wafer transferring operation is not performed includes an aperture (52) formed when the door closes the first opening portion (see Figure 1). In Tokunaga, a plurality of apertures are formed between the projections when the door closed the first opening portion.

18. With respect to claim 6, which is drawn to a processing parameter for an intended method, the courts have ruled that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

19. With respect to claim 13, the recited limitations are similar to those recited in claim 5 and are addressed above or are clearly illustrated in Figures 3-4 and 11A-F of Kinapara et al.

20. Claims 5-8 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,186,331 to Kinapara et al.

21. Kinapara et al. disclose a wafer processing apparatus including a mini-environment portion (Figure 2, 5) forming a pressurized chamber therein (column 7, rows 42 and 43), said apparatus substantially as claimed and comprising: a first opening (Figure 3, 23) formed on a part of a wall of the pressurized chamber formed by the mini-environment, the first opening being configured to face an opening of a clean box (Figures 2 and 3, 11) so as to allow loading and unloading of a wafer between the clean box and the mini-environment portion; a door (Figure 3, 25) configured to open and close the first opening; and a gas flow path (Figure 4, 45; also see Figure 3) formed between the door and the first opening when the door is closed, wherein a flow rate of a gas flowing through the gas flow path is substantially equal to a flow rate of the gas flowing from the pressurized chamber to the exterior of the mini-environment portion through the opening when the door is opened. Also see Figures 11A-F, where it

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is illustrated that the gap also exists on at least the sides of the opening, in addition to a top portion of the opening. The gap is the exit for gas coming from pressurized chamber through the opening, thus the flow rate of gas flowing through the gap would also be substantially equal to the flow rate of gas exiting the mini-environment through the opening.

22. However, while Kinapara et al. disclose the gas flow path on at least three sides of the opening, Kinapara et al. fails to explicitly teach the gas flow path surrounding the first opening on all sides (i.e. the disclosure does not explicitly teach forming and maintaining a gas flow path on a bottom side of the opening).

23. The courts have ruled that the test for obviousness is "what the combined teachings of the references would have suggested to those of ordinary skill in the art". See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). One of ordinary skill in the art would have undoubtedly recognized that the gas flow path could also be formed at a bottom side of the opening as well for the purpose of forming a path there that functions just as the flow paths at each of the other sides of the first opening.

24. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a gas flow path formed between the door and the first opening so as to encircle (surround) the first opening when the door is closed in Kinapara et al. in order to provide gap through which an air stream generated in the high cleanliness room flows to the low cleanliness room, thus preventing dust from entering the high cleanliness room as taught by Kinapara et al.

25. With respect to claim 6, which is drawn to a processing parameter for an intended method, the courts have ruled that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

26. With respect to claim 7, the gas flow path is formed by chinks that are *approximately* 2 mm wide (column 10, rows 49-53).

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27. With respect to claim 8, the apparatus further comprises a protruding wall disposed on an outer surface of the mini-environment in a circumference of the opening (Figure 3, 21).

28. With respect to claim 11, when the door is closed, no portions thereof are in contact with the wall of the chamber (see Figure 3 and 11A-F).

29. With respect to claim 12, the door further comprises a slit opening (housing opening mechanism 35, see Figures 3, 4 and 11A-F).

30. With respect to claims 13-15, the recited limitations are similar to those recited in claims 5-8 and 11-12 and are addressed above or are clearly illustrated in Figures 3-4 and 11A-F of Kinapara et al.

20. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinapara et al. as applied to claims 5-8 and 11-15 above, and further in view of U.S. Patent No. 6,682,629 to Kudo et al.

21. Kinapara et al. discloses the invention substantially as claimed and as described above.

22. However, Kinapara et al. fail to teach the protruding wall further comprises an eave.

23. Kudo et al. teach the use of an inflow restricting device (Figures 6-10, 98) at the opening of a wafer processing apparatus for the purpose of controlling and restricting an outside atmosphere from entering a clean environment (abstract and column 6, rows 1-5).

24. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an inflow restricting device (eave) in Kinapara et al. in order to control and restrict an outside environment from flowing into the mini-environment as taught by Kudo.

25. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinapara et al. as applied to claims 5-8 and 11-15 above, and further in view of U.S. Patent No. U.S. Patent No. 6,473,993 to Tokunaga.

26. Kinapara et al. disclose the invention substantially as claimed and as described above.

27. However, Kinapara et al. fail to teach the door comprising projections from an outer most perimeter thereof such that when the door is closed, only the projections are in contact with an outer surface of the wall of the chamber adjacent to the window opening.

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28. Tokunaga disclose the use of a plurality of projections provided on a sealing surface of a load port system for the purpose of maintaining a predetermined distance between sealing surfaces thereby allowing a flow of clean air from a mini-environment to the outside thereof. The projections are also provided for the purpose of allowing a closure/door to stop repeatedly at the same position with high precision (column 7, row 23 through column 8, row 31).

29. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of projections on the door in Kinapara et al. in order to maintain a predetermined distance between sealing surfaces thereby allowing a flow of clean air from the mini-environment to the outside thereof and also to allow the door to stop repeatedly at the same position with high precision as taught by Tokunaga.

Response to Arguments

30. Applicant's arguments filed 17 April 2006, with respect to claims 1-15 have been fully considered but they are not persuasive.

31. With respect to Applicant's argument that there is not gas flow path around the opening of the of the FOUP. Examiner disagrees on two accounts. First of all, the word "around" could be interpreted to mean that a gas flow path is located somewhere "in the vicinity of" the opening, as is the case with a gas flow path provided at 52. Secondly, Otaguro teaches that surrounding the opening a gap of zero or short distance may be maintained. "A short distance" would provide for a gas flow as claimed. Further, Otaguro's teachings of maintaining a flow of gas directed from a high pressure side of the apparatus to the low pressure side of the apparatus in order to provide a desired cleanliness would suggest to one of ordinary skill in the art that if a short distance is maintained, providing a gas flow at the gap would be advantageous in maintaining the apparatus at a desired cleanliness level.

32. With respect to Kinapara et al., Examiner disagrees with Applicant that the disclosure is quite different than the claimed invention. As described above, Kinapara et al. disclose a gas flow path on three sides of a FOUP opening, rather than completely surrounding an opening. As described above, it

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would have been obvious to one of ordinary skill in the art that the gas flow path could also be formed and maintained on a fourth side for the same reason the gas flow paths are formed on the fourth side.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Karla Moore
Primary Examiner
Art Unit 1763
21 June 2006